Jini-enabled
devices

120

User 1

User 2

Software
services

110

Network

Jini

Registry/Locate
Service

Transaction
Manager

Network Shared
Memory

100

Fig. 1
Prior Art

200

210

220

authentication
servlet

LDAP

205

260

Web
server

execution
manager

270

Load balancer/
compute server(s)

other
functionality...

RESULT
ARCHIVE

285

Browser

230

240

Lookup
server(s)

service

240

service

240

service

250

Service-specific
database(s)

240

service

Fig. 2

dc=com
objectclass: domain
dc: com

dc=ge
objectclass: domain
dc: ge

dc='mco
objectclass: domain
dc: 'mco

dc=crd
objectclass: domain
dc: crd

uid=joe.cecchetelli@lmco.com
objectclass: inetOrgPerson
objectclass: jinicommerceEntity
uid: joe.cecchetelli@lmco.com
cn: Joe Cecchetelli
userPassword: *******
jinicommerceGroup: cn=SI Tools,
dc=lmco,dc=com

cn=SI Tools
objectclass: groupOfNames
objectclass: jinicommerceEntity
cn: SI Tools
member:
uid=joe.cecchetelli@lmco.com,
dc=lmco,dc=com
member: uid=barnettja@crd.ge.com,
dc=crd,dc=ge,dc=com
member: uid=interran@crd.ge.com,
dc=crd,dc=ge,dc=com
jinicommerceData: https://lmco.com/
SITools/

uid=barnettja@crd.ge.com
objectclass: inetOrgPerson
objectclass: jinicommerceEntity
uid: barnettja@crd.ge.com
cn: Janet Barned
userPassword: *******
jinicommerceGroup: cn=SI Tools,
dc=lmco,dc=com

uid=interran@crd.ge.com
objectclass: inetOrgPerson
objectclass: jinicommerceEntity
uid: interran@crd.ge.com
cn: John Interrante
userPassword: *******
jinicommerceGroup: cn=SI Tools,
dc=lmco,dc=com

cn=ACME
objectclass: service
objectclass: jinicommerceEntity
cn: ACME
description: ....
jinicommerceData: https://lmco.com/
ACME/

cn=ACME Results
objectclass: applicationProcess
objectclass: jinicommerceEntity
cn: ACME Results
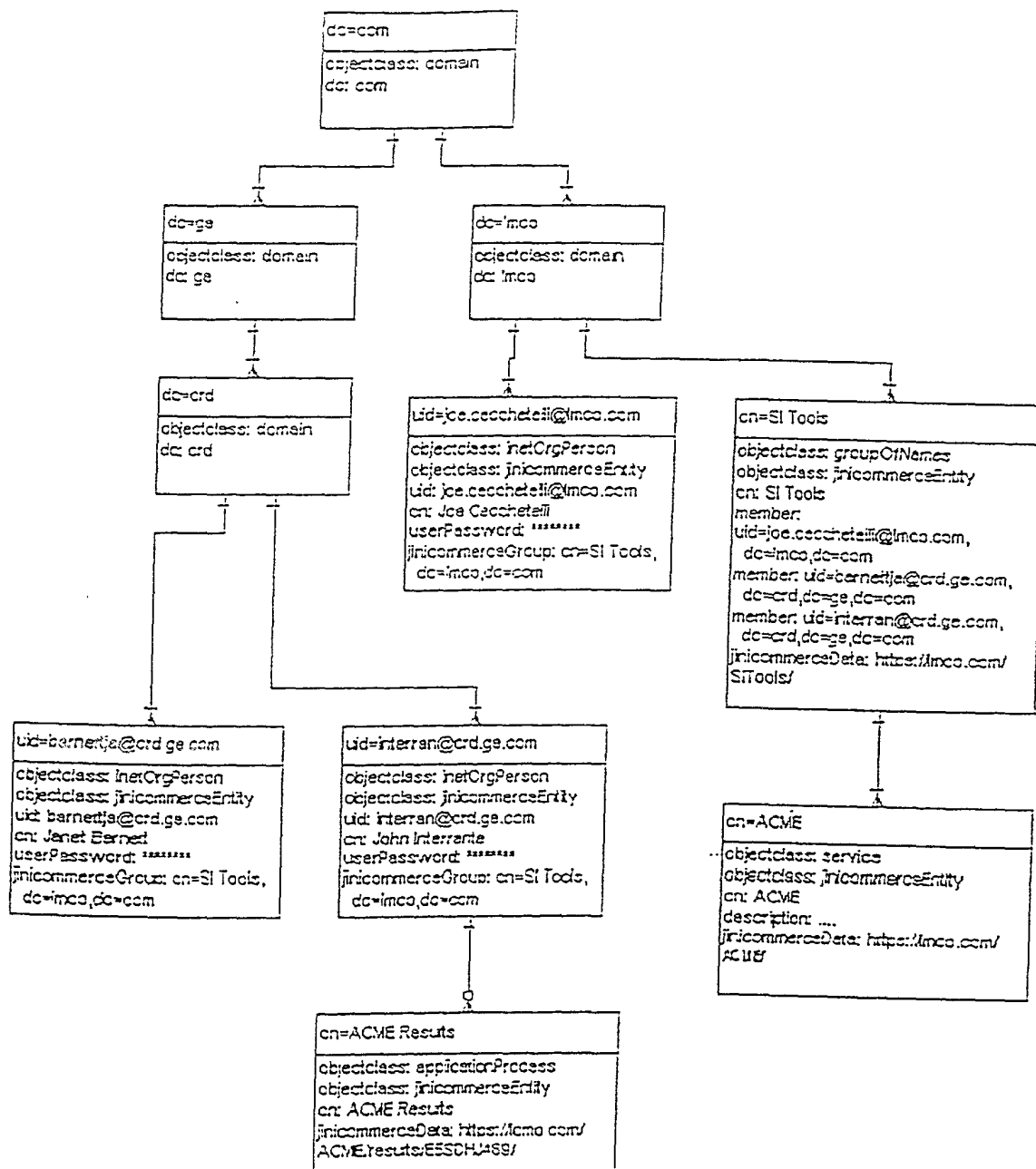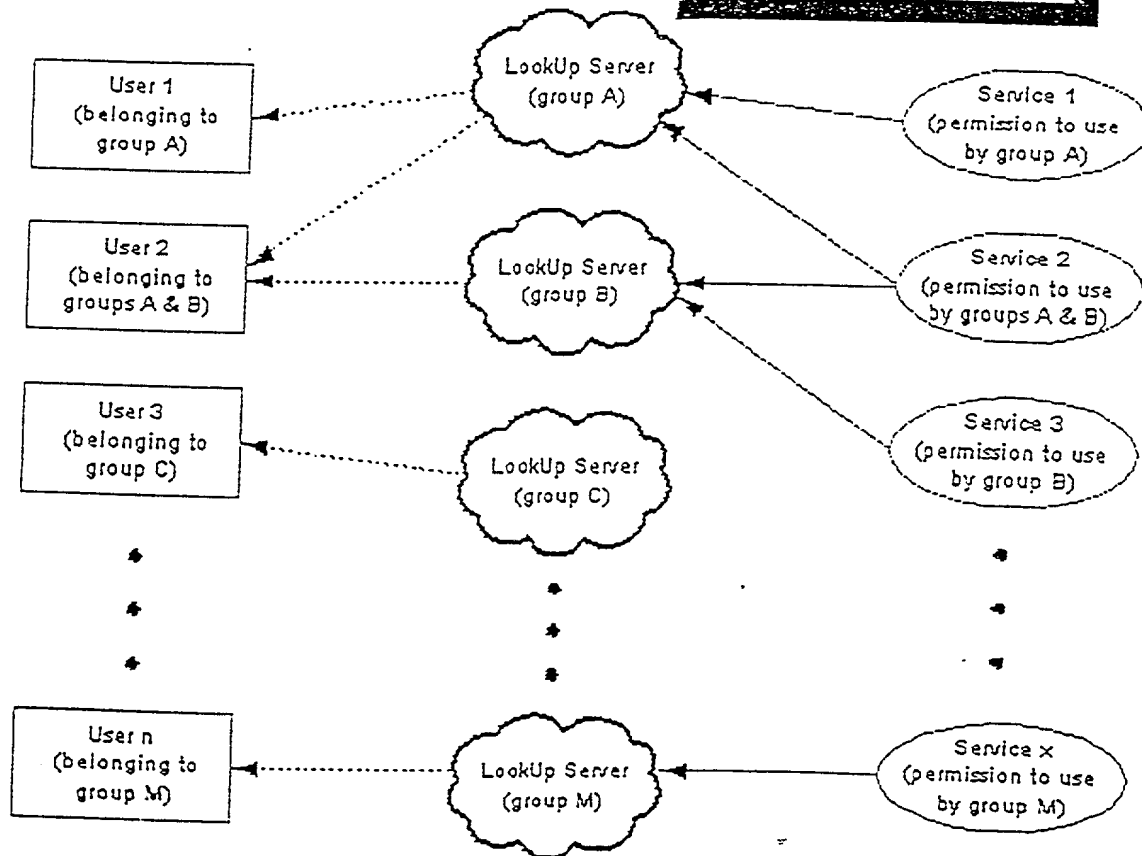jinicommerceData: https://lmco.com/
ACMEresults/EESDHJ489/

Fig. 3

Once a user has logged in (or in
some way authenticated himself), the
user will only have access to those
services assigned to his group.

As services or applications are added
to the system, they will be registered
with the appropriate LookUp Server.
Each service will have a group access
permission associated with it.

LookUp Server
(group A)

User 1
(belonging to
group A)

Service 1
(permission to use
by group A)

LookUp Server
(group B)

User 2
(belonging to
groups A & B)

Service 2
(permission to use
by groups A & B)

User 3
(belonging to
group C)

LookUp Server
(group C)

Service 3
(permission to use
by group B)

User n
(belonging to
group M)

LookUp Server
(group M)

Service X
(permission to use
by group M)

Each user will belong to one or
more groups for access control
purposes.

One LookUp Server will exist for each
access control group. When a new
group is created, an appropriate
LookUp Server will be to be started.

Services represented here are user
accessible services. Other system
services (like payment, authentication,
etc.) are restricted to use by only system
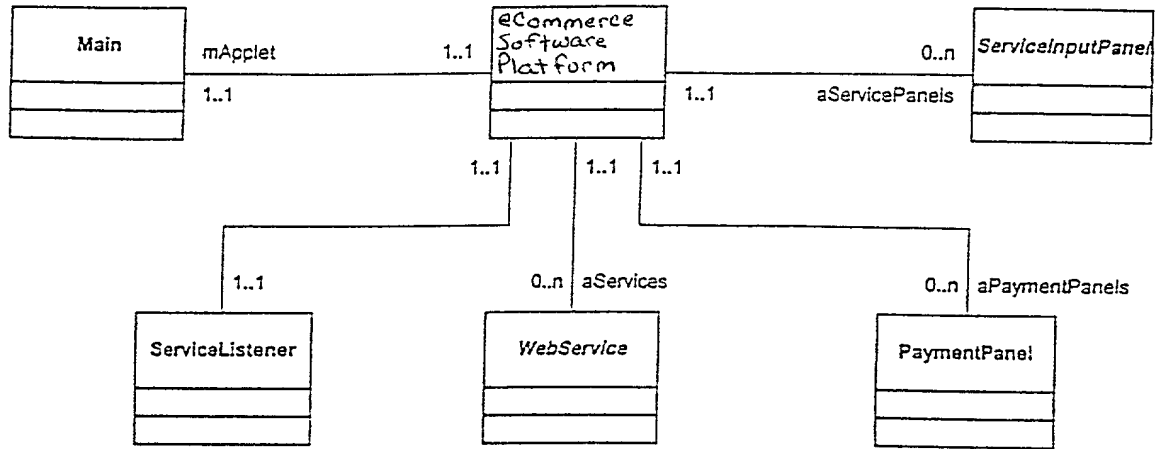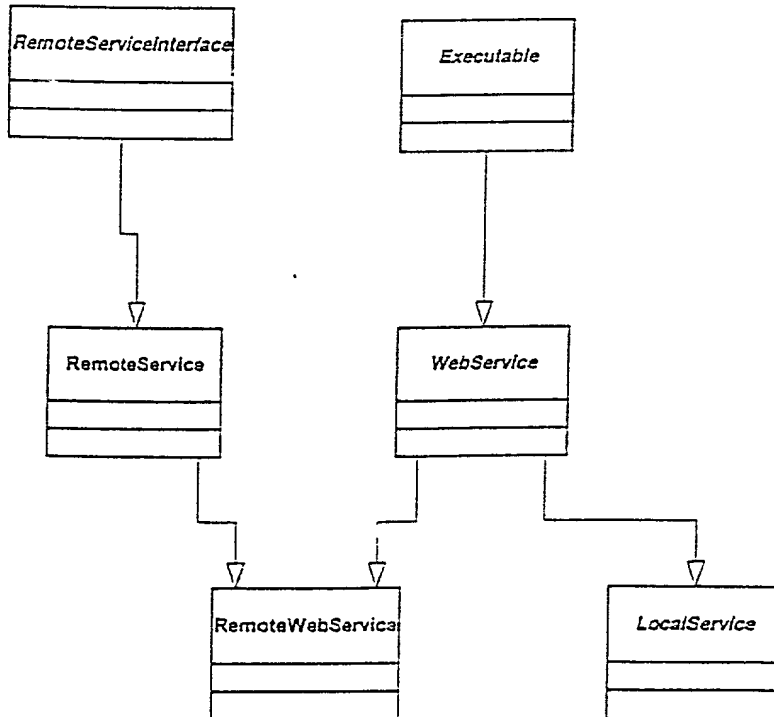level functions.

Fig 4

Logical View

```
┌─────────────────┐                                    ┌──────────────────┐                      ┌──────────────────┐
│      Main       │  mApplet                    1..1   │   eCommerce      │            0..n      │ ServiceInputPanel│
├─────────────────┤────────────────────────────────── │   Software       │ ──────────────────── ├──────────────────┤
│                 │  1..1                              │   Platform       │   1..1  aServicePanels├──────────────────┤
├─────────────────┤                                    ├──────────────────┤                      ├──────────────────┤
└─────────────────┘                                    └──────────────────┘                      └──────────────────┘
```

1..1   1..1   1..1

```
        1..1                          0..n  aServices                    0..n  aPaymentPanels
┌─────────────────┐          ┌──────────────────┐                  ┌──────────────────┐
│  ServiceListener│          │    WebService     │                  │   PaymentPanel   │
├─────────────────┤          ├──────────────────┤                  ├──────────────────┤
├─────────────────┤          ├──────────────────┤                  ├──────────────────┤
└─────────────────┘          └──────────────────┘                  └──────────────────┘
```

Fig. 5A

Services

```
┌──────────────────────┐              ┌──────────────────┐
│ RemoteServiceInterface│             │    Executable    │
├──────────────────────┤              ├──────────────────┤
├──────────────────────┤              ├──────────────────┤
└──────────────────────┘              └──────────────────┘
           │                                    │
           ▽                                    ▽
┌──────────────────────┐              ┌──────────────────┐
│     RemoteService     │             │    WebService    │
├──────────────────────┤              ├──────────────────┤
├──────────────────────┤              ├──────────────────┤
└──────────────────────┘              └──────────────────┘
           │                          │         │
           ▽                          ▽         ▽
     ┌──────────────────────┐              ┌──────────────────┐
     │  RemoteWebService     │             │   LocalService   │
     ├──────────────────────┤              ├──────────────────┤
     ├──────────────────────┤              ├──────────────────┤
     └──────────────────────┘              └──────────────────┘
```

Fig. 5B